What is claimed is:

1. Isolated Apo-2DcR polypeptide having at least about 80% amino acid sequence identity with native sequence Apo-2DcR polypeptide comprising amino acid residues 1 to 259 of Fig. 1A (SEQ ID NO:1).

2. The Apo-2DcR polypeptide of claim 1 wherein said Apo-2DcR polypeptide has at least about 90% amino acid sequence identity.

3. The Apo-2DcR polypeptide of claim 2 wherein said Apo-2DcR polypeptide has at least about 95% amino acid sequence identity.

4. Isolated native sequence Apo-2DcR polypeptide comprising amino acid residues 1 to 259 of Fig. 1A (SEQ ID NO:1).

5. Isolated extracellular domain sequence of Apo-2DcR polypeptide comprising amino acid residues 1 to 161 of Fig. 1A (SEQ ID NO:1).

6. The extracellular domain sequence of claim 5 comprising amino acid residues 1 to 236 of Fig. 1A (SEQ ID NO:1).

7. Isolated native sequence Apo-2DcR polypeptide comprising amino acid residues -40 to 259 of Fig. 1B (SEQ ID NO:3).

8. A chimeric molecule comprising the Apo-2DcR polypeptide of claim 1 or the extracellular domain sequence of claim 5 fused to a heterologous amino acid sequence.

9. The chimeric molecule of claim 8 wherein said heterologous amino acid sequence is an epitope tag sequence.

10. The chimeric molecule of claim 8 wherein said heterologous amino acid sequence is an immunoglobulin sequence.

11. The chimeric molecule of claim 10 wherein said immunoglobulin sequence is an IgG.

12. An antibody which specifically binds to the Apo-2DcR polypeptide of claim 1 or the extracellular domain sequence of claim 5.

13. The antibody of claim 12 wherein said antibody is a monoclonal antibody.

14. The antibody of claim 12 which is an agonist antibody.

15. Isolated nucleic acid encoding the Apo-2DcR polypeptide of claim 1 or the extracellular domain sequence of claim 5.

16. The nucleic acid of claim 15 wherein said nucleic acid encodes native sequence Apo-2DcR polypeptide comprising amino acid residues 1 to 259 of Fig. 1A (SEQ ID NO:1).

17. The nucleic acid of claim 15 comprising nucleotides 193 to 969 of Fig. 1A (SEQ ID NO:2).

18. A vector comprising the nucleic acid of claim 15.

19. The vector of claim 18 operably linked to control sequences recognized by a host cell transformed with the vector.

20. A host cell comprising the vector of claim 18.

21. A process of using a nucleic acid molecule encoding Apo-2DcR polypeptide to effect production of Apo-2DcR polypeptide comprising culturing the host cell of claim 20.

22. A non-human, transgenic animal which contains cells that express nucleic acid encoding Apo-2DcR polypeptide.

23. The animal of claim 22 which is a mouse or rat.

24. A non-human, knockout animal which contains cells having an altered gene encoding Apo-2DcR polypeptide.

25. The animal of claim 24 which is a mouse or rat.

26. An article of manufacture, comprising a container and a composition contained within said container, wherein the composition includes Apo-2DcR polypeptide or Apo-2DcR antibodies.

27. The article of manufacture of claim 26 further comprising instructions for using the Apo-2DcR polypeptide or Apo-2DcR antibodies *in vivo* or *ex vivo*.

28. A method of modulating apoptosis in mammalian cells comprising exposing said cells to Apo-2DcR polypeptide.

29. The method of claim 28 wherein said cells are exposed to Apo-2 ligand.

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